

# Data.

Mass of empty crucible	$\text{CuSO}_4 \cdot \text{H}_2\text{O}$ 16.40g.
Mass of crucible and hydrated salt.	19.65g
Mass of crucible and anhydrous salt (first heating).	18.42g
Mass of crucible and anhydrous salt (second heating).	18.42g
Mass of crucible and anhydrous salt (Third heating).	XXXXXXXXX.

Calculations	
1. Mass of hydrated Salt	$(19.65\text{g} - 16.40\text{g}) = 3.25\text{g}.$
2. Mass of anhydrous Salt	$(18.42\text{g} - 16.40\text{g}) = 2.02\text{g}.$
3. Moles of anhydrous salt.	$\left( \begin{array}{l} \text{moles of anhydrous} = \text{mass of} \times \text{molar mass} \\ \text{CuSO}_4 \quad \text{anhydrous} \quad \text{of CuSO}_4 \\ \text{CuSO}_4 \end{array} \right)$ $= (159.60\text{g/mole} \times 2.02\text{g})$ $= \underline{\underline{322.39\text{g}}}$
4. Mass of water	$\left( \begin{array}{l} \text{mass of water} = \text{mass of} - \text{mass of anhydrous} \\ \text{hydrated CuSO}_4 \quad \text{CuSO}_4 \end{array} \right)$ $= (3.25\text{g} - 2.02\text{g})$ $= 1.23\text{g of water}.$
5. Moles of water.	$\text{moles of water} = \left( \frac{\text{mass of water}}{\text{molar mass of water}} \right)$ $= \left( \frac{1.23\text{g}}{18\text{g/mole}} \right)$ $= \underline{\underline{0.068\text{ moles}}}$
6. Moles of water for every 1 mole of 1 mol of anhydrous salt.	$1 \text{ mole of anhydrous salt} \rightarrow 159.60\text{g}$ $\times \quad \quad \quad 2.02\text{g}$ $0.013 \text{ moles}$
7. Chemical formula of hydrate	$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}.$
Actual moles of water in the compound.	5